

**WHAT IS CLAIMED IS:**

1           1. An apparatus for testing an xDSL transceiver unit-central office, comprising:  
2           a multiplexer for connecting all ports of a modem installed in a transceiver unit-central  
3 office, and for setting a link with a subscriber transceiver unit by selecting one of the ports of the  
4 modem according to a link setup control signal;  
5           a line simulator for supplying line types designated according to a test environment setup  
6 control signal and line states in accordance with a set noise; and  
7           a tester for storing a set test environment from a user, for transmitting the link setup control  
8 signal having a link number for test to the multiplexer, for transmitting the test environment setup  
9 control signal to the line simulator after designating line types and setting noise, for activating a  
10 port to be tested by transmitting the link setup control signal having the link number for test and  
11 a designated communication parameter value of the link to the transceiver unit-central office, and  
12 for receiving and storing link states from the transceiver unit-central office.

1           2. The apparatus according to claim 1, wherein the line types supplied by the line  
2 simulator include at least one of line types designated in an xDSL form and simple variable length  
3 line types, and the noise set by the line simulator is designated in an xDSL form when the line  
4 types are designated in the xDSL form.

1           3. The apparatus according to claim 2, wherein a diameter of simple variable length lines

supplied by the line simulator is one of American Wire Gauge (AWG) #24 and AWG #26.

4. The apparatus according to claim 1, wherein when the tester transmits the link setup control signal to the transceiver unit-central office, the communication parameters included in the link setup control signal transmitted by the tester to the transceiver unit-central office include at least one of SNR margins, target transmission rates, target power spectral density (PSD), target interleave depth, and target transmission latency.

5. The apparatus according to claim 1, wherein the link states transmitted from the transceiver unit-central office include at least one of current rate-up, current rate-down, maximum rate-up, maximum rate-down, SNR margin-up of current uplink, SNR margin-down of current downlink, interleave depth-up of current uplink, interleave depth-down of current downlink, PSD up of upward signal, PSD down of downward signal, RS-code word size up of DMT, RS-code word size down for DMT, attenuation-up of upward line, attenuation-down of downward line, latency-up of upward line, and latency-down of downward line.

6. The apparatus according to claim 1, wherein the tester comprises:  
an input unit generating an input signal in accordance with a user operation;  
a transceiver for supplying communication with the multiplexer, the line simulator and the transceiver unit-central office;  
a memory for storing a set test environment, and for storing the link states transmitted from

6 the transceiver unit-central office;

7 a display for supplying a test environment setup screen and a monitoring screen to a user;

8 and

9 a controller for receiving the set test environment from the user by supplying the test  
10 environment setup screen through the display, for storing the set test environment in the memory,  
11 for transmitting the link setup control signal having the link number for test to the multiplexer, for  
12 transmitting the test environment setup control signal to the line simulator after designating line  
13 types and setting a noise, for activating the port to be tested by transmitting the link setup control  
14 signal having the link number for test and the designated communication parameter value of the  
15 link to the transceiver unit-central office, and for receiving and storing the link states from the  
16 transceiver unit-central office.

1 7. The apparatus according to claim 6, wherein the test environment setup screen supplied  
2 by the controller through the display includes at least one of a line type setup window, a noise  
3 environment setup window, a port range setup window to be tested, and a frequency setup window.

1 8. A method of testing an xDSL transceiver unit-central office, comprising the steps of:  
2 (a) initializing a line simulator, a multiplexer, and a transceiver unit-central office;  
3 (b) transmitting a link setup control signal designating communication parameter values  
4 of a link as predetermined values to the transceiver unit-central office, and making the transceiver  
5 unit-central office set the link according to the designated communication parameter values;

6 (c) transmitting a test environment setup command including line type information and  
7 noise environment information to the line simulator, and making the line simulator set line types  
8 and a noise environment;

9 (d) selecting a port among a plurality of modem ports of the transceiver unit-central office,  
10 and making the multiplexer set a link by controlling the multiplexer; and

11 (e) activating a port to be tested by transmitting a port activation command to the  
12 transceiver unit-central office, and storing link states transmitted from the transceiver unit-central  
13 office.

1 9. The method of claim 8, further comprising the steps of;

2 (f) deciding whether other line types to be tested and a noise environment exist;

3 (g) performing process steps including step (c) repeatedly when the other line types and the  
4 noise environment exist;

5 (h) deciding whether another port to be tested exists when the other line types to be tested  
6 and the noise environment do not exist; and

7 (i) inactivating the transceiver unit-central office when said another port to be tested exists,  
8 and performing process steps including step (d).

1 10. The method of claim 8, wherein the designated communication parameter values  
2 include target SNR margins, target transmission rates, target power spectral density (PSD), target  
3 interleave depth, and target transmission latency.